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Motivation of politicians and long-term policies

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Abstract We analyze the motivation of politicians in democracies when long-term policies are socially desirable. Politicians receive utility from holding office and from the success of their projects. We refer to the two extreme types of politicians as "populists" and "policy success-seekers". One result is that inefficiencies in the political process are smaller when a politician is of the populist type. When politicians offer incentive contracts, the problem of inefficient decision-making may be solved. The amount of money necessary to induce the incumbent to undertake the socially optimal project decreases with the degree of populism he displays.

Keywords Democracy · Elections · Incentive contracts

JEL Classification: D72, D82

1 Introduction

One important inefficiency in the political process is caused by the fact that democratic elections alone cannot motivate politicians to undertake long-term, socially beneficial projects that do not perform well in the short run, when politicians are short-term oriented or future elections do not sufficiently reflect the success of past policies. In this paper we develop a model framework to analyze this kind of inefficiency called the "down-up problem". In this instance, there is one policy project that is not efficient in the long run but leads to good results in the short run. Another option is to undertake a long-term oriented policy project that is less successful in the short run but leads to a socially efficient result in the long run. The paper shows that under certain circumstances the incumbent might prefer to implement the socially inefficient short-term-oriented policy to increase his reelection chances.

We consider two types of politicians differing with regard to their utility function. One type of politician is mainly motivated by the benefits obtained from holding office. Hence, he will

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pursue a policy that gives him the best chances of being reelected. We will call this politician a "populist". The other type of politician has private benefits from the positive results of the policy implemented. We will refer to this kind of politician as a "policy success-seeker". We assume that voters know the type of a politician and analyze how the motivation of politicians is related to the inefficiency characterized above. Surprisingly, under the assumptions used in this paper, inefficiencies in the political process are smaller when a politician is a populist.

To solve the inefficiencies caused by the down-up problem we use a combination of democratic elections and the competition of politicians for incentive contracts. The theoretical analysis of incentive elements in politics has been initiated by Gersbach (2003) and extended by Gersbach and Liessem (2001, 2003), and Gersbach (2004a). A comprehensive summary of the ideas, chances and problems of incentive contracts for politicians can be found in Gersbach (2005). There is extensive literature on incentive contracts in general. The analysis of incentive problems in the classical principal-agent framework started with Mirrless (1976), Holmström (1979), and Grossman and Hart (1983). One can distinguish incentive schemes based on *objective performance measurement* (see e.g. Baker, 1992; Lazear, 2000) and incentive mechanisms based on *subjective performance assessments* (see e.g. Gibbons, 1998). We use an objective performance measure in this paper, as we make payment dependent on the results of the politician's projects.

There are also some other branches of the literature relevant for this paper. First, there is a growing range of literature on the optimal remuneration of politicians (see e.g. Besley, 2004; Messner & Polborn, 2004; Poutvaara & Takalo, 2003). Second, related to the topic of remuneration is the discussion of term limits for politicians. An extensive overview of the literature concerning term limits can be found in Smart and Sturm (2004).

Third, and directly relevant for our purposes, there is the literature on populistic politicians (see e.g. Canovan, 1981; Gersbach, 2004b). Canovan (1981) criticizes the prevalent opinion that populism is dangerous to democracy. She argues that popular decisions are essential for democracy. Thus, populists might be considered as extremely democratic. We provide an analytical result in this direction: Populism is not necessarily detrimental for society. This is in contrast to the results in Gersbach (2004b), where populism may lead to undesirable outcomes. In Gersbach (2004b), voters do not know the type of politicians and whether a politician is competent or not. One result of Gersbach (2004b) is that populists try to mimic the behavior of statesmen and want to appear as competent to improve their reelection chances by being regarded as statesmen. As a consequence, policy decisions are distorted and thus populism leads to undesirable outcomes. The focus of our paper is different: In the basic version, there are no information asymmetries, but politicians lack incentives to undertake long-term beneficial projects.

Finally, this paper is related to the literature about electoral accountability initiated by Barro (1973) and Ferejohn (1986) and extended by Persson, Roland, and Tabellini (1997). In this literature voters and politicians are assumed to have different sources of utility. An attempt is made to solve the emerging principal-agent problem by an optimal election mechanism. The pursuit of reelection is an incentive for self-interested politicians to act in accordance with the interests of voters. However, even the optimal election mechanism is frequently unable to guarantee socially efficient solutions.

Accordingly, we present in this paper a dual mechanism of elections and incentive contracts as a more powerful control mechanism in politics. Although we add contractual accountability to politicians, we are aware of the fact that the principles of democracy have to be adhered to.

We use a similar model to that of Gersbach (2004a). Voters are assumed to be fully rational. The elected politician has to implement one type of policy. His options are a socially efficient

policy, a socially inefficient policy, and the status quo. The results are derived in two different scenarios. In the commitment scenario, the voters are able to commit themselves to a reelection scheme depending on policy performance. This reelection scheme is announced before the elected politician starts his first term. The second case is the more realistic framework of non-commitment, where the public is not able to commit itself to such a reelection scheme. In both scenarios the game is finished after the second period. This may be interpreted as a two-period term limit for politicians. In our solution proposal, we permit politicians to offer monetary incentive contracts during their campaigns, while there is also the familiar control mechanism of periodic, free, and anonymous elections. The incentive contract connects the remuneration of the incumbent to his political performance.

Our main results are as follows: First, in the commitment case the incumbent will undertake the socially inefficient policy if he is mainly motivated by the positive results of the policy he has implemented. Hence, inefficiencies are smaller if a politician is populistically inclined, while policy success-seekers generate higher inefficiencies. Second, in the case of total non-commitment the incumbent will not undertake the socially optimal project, except for the case where he is a 100% populist. Finally, if politicians are permitted to offer incentive contracts, then it will always be possible to motivate the incumbent to implement the socially optimal policy. Thus, both in the case of a populist and in the case of a policy success-seeker, it is possible to solve the down-up problem. However, the amount of money necessary to induce the incumbent to undertake the socially optimal project decreases with the degree of populism he displays. Thus, it is advantageous for society if politicians are rather populistic.

We have organized the paper in the following way: In the next section we present our model and the assumptions. We look at the efficiency of the election mechanism in Section 3. In Section 4 we allow politicians to offer incentive contracts and observe that the dual mechanism of elections and incentive contracts alleviates the inefficiency problem. In Section 5 we look in detail at two extreme types of politician: statesmen and populists. Finally, Section 6 concludes.

2 Model and assumptions

Our model is close to that of Gersbach (2004a). We consider a dynamic game with two periods denoted by $j = 1$ and 2. Before the first period starts, two risk-neutral politicians, indexed by $i = 1$ and 2, compete for office. In the first period, the elected candidate makes a policy decision about undertaking a project. An implemented project generates returns in both periods, denoted by V^1 and V^2, respectively. Later, the returns will be subscripted according to the type of project. All politicians and all voters are assumed to be perfectly informed. Thus, there are no problems of asymmetric information.

2.1 Sequence of actions

The complete game is given as follows:

Stage 1: The public decides which politician gets elected. We use p_i to denote the probability that politician i will be elected. We assume that $p_1 + p_2 = 1$ and that $0 \leq p_i \leq 1$.

Stage 2: The incumbent has to make a decision about undertaking policy projects. There are three possibilities: he can choose a short-term policy (*STP*), he can undertake

a long-term policy (*LTP*), or he can continue with the status quo and do nothing (*NOT*). We describe the policy projects in the next subsection.

Stage 3: The voters observe the returns from the first period. The incumbent decides whether he wants to run for office again. The public decides on the reelection of the politician, and incumbent i gets reelected with probability q_i ($0 \leq q_i \leq 1$).

2.2 Policy projects

The returns to the public from the options *STP*, *LTP*, and *NOT* in period j are denoted by V_S^j, V_L^j, and V_N^j, respectively. Note that we assume that policy results are perfectly observable to the voters.[1] The short-term policy *STP* generates a positive return $V_S^1 > 0$ in the first period, but a negative return $V_S^2 < 0$ in the second period. The long-term policy *LTP* is assumed to have no short-term consequences (i.e., $V_L^1 = 0$),[2] but it generates positive payoffs $V_L^2 > 0$ in the second period. If the politician continues with the status quo and thus chooses the option *NOT*, the payoffs are $V_N^1 = V_N^2 = 0$, as the social returns from the status quo are normalized to zero. Hence, the payoffs of *LTP* and *STP* indicate the differences to the status quo.

The total returns to the public from the options *STP*, *LTP*, and *NOT* are denoted by TV_S, TV_L, and TV_N, respectively. Thus:

$$TV_S = V_S^1 + \delta\, V_S^2$$
$$TV_L = \delta\, V_L^2$$
$$TV_N = V_N^1 + \delta\, V_N^2 = 0$$

δ is the discount factor of the public ($0 < \delta \leq 1$). Furthermore, we assume that

$$V_S^1 > TV_L$$
$$TV_L > TV_N > TV_S$$

The last assumption immediately implies that the socially optimal policy is *LTP*. There are many examples for the problem where a policy has only a poor (or even a negative) performance in the short term but is socially optimal in the long run. For instance, labor market reforms involving dismissals of employees can cause higher unemployment in the short term while additional jobs only emerge gradually. Higher investments in education may lead to higher taxes in the short run, while there is a positive effect on public welfare in the long run caused by the growth in human capital. The transition of centrally planned economies towards market economies may imply welfare deteriorations in the short term as the existing structures of economy have to be dismantled. Nevertheless, the change of the economic system may generate benefits in the long term. Note that before elections

[1] We make this assumption as we wish to show that the election mechanism is not always able to motivate the elected politician to undertake the socially efficient policy. If this is not possible in the case of perfectly observable project results, then it will not be possible under any other scenario either. Note that incentive contracts will still be efficient if voters cannot perfectly observe the policy results, although the costs of incentive contracts might increase. Hence, one could extend the model to the case where there are errors in observing project results without changing the conclusions of the paper.

[2] The short-term consequences of *LTP* can sometimes even be negative, but this would only reinforce the results of this paper.

politicians often adopt short-term policies instead of long-term policies in order to achieve quick successes and thus to ensure their reelection.[3]

We assume that contracts can be conditioned on political results measured by such things as GDP growth, rate of unemployment, or criminal statistics.[4] However, we also assume that contracts cannot be conditioned on the policy choice itself, as this would require complete contracts including all possible laws and policies, which seems to be impossible.[5]

2.3 Politicians' utility

We assume that the politician is genuinely concerned about the social return he generates, as long as the outcomes of policies occur while he is in office. The politician receives private benefit if the implemented project generates a social return that is larger than the return of the status quo as long as he is in office. The private benefit is given by $\alpha \cdot \max\{V, 0\}$,[6] where α is a number with the restriction $0 < \alpha < 1$. The parameter α measures the extent to which the candidates receive private benefit from the social return generated by the implementation of their policy.[7]

A second source of private utility is the benefits from holding office. These benefits are denoted by $B > 0$ and can include monetary rewards as well as non-monetary benefits like prestige or the satisfaction of being in power.[8]

The utility of outside options is assumed to be zero. That means that the costs and benefits of a politician are normalized to zero if he is not in office. We assume that the politicians and the public have the same discount factor δ. We use U_i to denote the expected utility of politician i in period 1, when he campaigns for office for the first time, and assume that

$$U_i = p_i\{(1 - m_i)B + m_i\,\alpha V^1 + \delta q_i[(1 - m_i)B + m_i\alpha \cdot \max\{0, V^2\}]\}. \tag{1}$$

The parameter m_i is the significance agent i assigns to private returns from projects, while $(1 - m_i)$ is the significance of benefits from holding office. The values m_1 and m_2 are exogenously given for both candidates at the beginning of the game. For the moment, we assume $0 \leq m_i \leq 1$.[9] A value of m_i close to 1 means that the agent is mainly motivated by the policy he implements. A low value of m_i corresponds to a politician who is mainly concerned with holding office. In other words, one could call a politician with high-valued m_i a "policy success-seeker", while a politician with m_i close to 0 will appear to be something more like an "office-seeker" who is only concerned about being reelected and may thus be

[3] There is a wide range of literature on such political business cycles (see, for example, Nordhaus, 1975; Hibbs, 1977; Persson & Tabellini, 1993).

[4] For simplicity of exposition, contracts are assumed to be linear in these figures. Since the results in the second period can only take three values, this assumption could easily be relaxed.

[5] Detailed information about incomplete contracts can be found, for example, in the survey by Hart (1995).

[6] Note that $\max\{V^1, 0\} = V^1$, since V^1 is assumed to be non-negative in all three possible projects.

[7] Alternatively, the private benefit could arise from the fact that high returns enable the politician to pay some returns to interest groups supporting him, as is suggested by a large range of literature on public choice (see e.g. Mueller, 1989). This interpretation yields the same qualitative conclusions, but the voters must consider that some returns from projects are lost for the public as they are removed by the politician to compensate the interest groups supporting him.

[8] We assume that the non-monetary benefits of B are converted into a monetary value so that we are able to calculate with all utility components in one utility function.

[9] Later we consider a higher minimum level for m_i.

called "populist". We allow for the fact that politicians may differ in the factor m_i ($i = 1, 2$). The values m_i are known to both politicians. Furthermore, we assume in the following that m_1 and m_2 are known to the public. It is often well-known whether a politician is more interested in the results of his policy or in benefits from holding office, especially if the incumbents have already had long political careers. Without any loss of generalization we label candidates in such a way that $m_1 \geq m_2$.[10]

We immediately get

- the utility of an elected politician i if he undertakes *LTP* and is reelected:

$$U_i^L(q_i = 1) = (1 - m_i)B + \delta\left\{(1 - m_i)B + m_i\alpha V_L^2\right\} \tag{2}$$

- the utility of an elected politician i if he undertakes *STP* and is reelected:[11]

$$U_i^S(q_i = 1) = (1 - m_i)B + m_i\alpha V_S^1 + \delta(1 - m_i)B \tag{3}$$

- the utility of an elected politician i if he undertakes *STP* and is not reelected:

$$U_i^S(q_i = 0) = (1 - m_i)B + m_i\alpha V_S^1 \tag{4}$$

Note that $U_i^S(q_i = 1) \geq U_i^S(q_i = 0)$, as $B > 0$. Therefore, voters can always punish a politician by not reelecting him. Furthermore, running for reelection is a weakly dominant strategy for a politician irrespective of his project choice. Thus, we do not have to consider the case where a politician does not want to run for reelection in our analysis.

2.4 Tie-breaking rules

To simplify the presentation, we use three tie-breaking rules.

- First, if two politicians are expected to generate the same total returns to the public, the voters will elect the politician with the lower factor m_i.[12]
- Second, if both politicians generate the same total returns to the public and are identical in terms of the factor m_i, both politicians will have the election probability $p_1 = p_2 = \frac{1}{2}$.
- Third, if two policies yield the same utility for the politician, he will select the policy that yields higher social welfare.

These tie-breaking rules simplify our exposition but are not essential for the results.

[10] Our main results can easily be extended to more than two politicians and to values of m_i picked from a continuous set. For instance, in the case of three or more politicians, only those two politicians with the lowest values m_i matter for the Propositions 3, 4, and 5 and the corresponding corollaries.

[11] Note that the utility from private returns in the second period is 0, as $\max\{V_S^2, 0\} = 0$.

[12] This rule perhaps sounds surprising as a "policy success-seeker" – corresponding to a high value of m_i – seems to be preferable to a populist. Nevertheless, as we will see later, the situation is the other way around. The lower the value of m_i, the easier it becomes to implement *LTP*.

3 Results

By assumption, the optimal policy for the public is *LTP*. In this section we analyze how the voters can induce the politician to undertake *LTP*. Voters have to make their election decision before the politicians undertake the policy project. As we will see below, it will always be optimal to elect the politician with the lower value m_i. We will look at two different scenarios concerning the voters' ability to commit themselves to their reelection decision.

First, we assume that the voters can commit themselves at the beginning of the game to their reelection scheme in stage 3 in order to give the election mechanism the largest possible power to motivate the elected politician to undertake *LTP*. The voters announce two reelection probabilities, depending on the results they observe. If the politician undertakes *STP*, the public will observe V_S^1 and will reelect the politician with probability $q(V_S^1)$. If the politician undertakes *LTP* or *NOT*, the voters will observe a result of 0 and will reelect the politician with probability $q(0)$. Under these assumptions we obtain our first proposition.

Proposition 1. *Suppose that the voters can commit themselves to a reelection scheme in stage 1. If* $m_i > \tilde{m}(\delta)$ *with*

$$\tilde{m}(\delta) = \frac{\delta B}{\alpha V_S^1 + \delta B - \delta \alpha V_L^2}, \tag{5}$$

then there is no reelection scheme of the voters that can motivate the elected politician to undertake LTP.[13]

Proof: First, the politician will never choose *NOT* under any reelection scheme.[14] He has the same reelection probability under *LTP* and *NOT*, as the voters are not able to distinguish between the two policy results after period 1. For $q(0) \neq 0$ and $m_i \neq 0$, the benefits of the incumbent under *LTP* are larger than his benefits under *NOT*. For $q(0) = 0$ or $m_i = 0$, his benefits are equal under *LTP* and *NOT*. In case of equal benefits under *LTP* and *NOT*, the politician will choose *LTP* according to our third tie-breaking rule.

Second, the optimal reelection scheme for the public is setting $q(0) = 1$ and $q(V_S^1) = 0$, which is the largest possible spread to deter the politician from choosing *STP*. Not reelecting a politician who has implemented *STP* is optimal for the voters, as he has no negative private utility from a negative result in period 2.[15] Hence, the critical value $\tilde{m}(\delta)$ is calculated by setting $U_i^L(q_i = 1) = U_i^S(q_i = 0)$, which yields the above result for Equation (5). If $m_i < \tilde{m}(\delta)$, then $U_i^L(q_i = 1) > U_i^S(q_i = 0)$. Thus, a politician will choose *LTP* under the reelection scheme $q(0) = 1$ and $q(V_S^1) = 0$ if $0 < m_i \leq \tilde{m}(\delta)$, and *STP* otherwise. □

This result seems quite surprising, as one might think that a politician who is mainly concerned with holding office would be worse for the public than a politician who is interested in the policies he implements. But surprisingly the reverse is true. A politician who has only a low estimation of his project results V_i obtains better performance. The reason for this

[13] Note that the term $(\alpha V_S^1 + \delta B - \delta \alpha V_L^2)$ is strictly positive, as we have assumed that $V_S^1 > TV_L$.

[14] Note that this is only true since we assume that there are no effort costs for the incumbent. The result would no longer be inevitably true in the case of effort costs. Then doing nothing could be advantageous for the elected politician.

[15] Note that it might be possible for the public to punish a politician by reelecting him if the incumbent had negative private utility from a negative result in period 2.

somewhat paradoxical result is the shape of the politicians' utility function. *LTP* will only be implemented if $U_i^L(q_i = 1) \geq U_i^S(q_i = 0)$. If the politician undertakes *STP* he will not be reelected.[16] Hence, he benefits from V_S^1 but suffers no damages from V_S^2. By assumption, we have $V_S^1 > \delta\ V_L^2$. The politician can only obtain higher utility from implementing *LTP* if the effect of $V_S^1 > \delta\ V_L^2$ is compensated by the benefits from holding office in the second period. Hence, a low value of m_i facilitates the implementation of *LTP*. As $\delta B < (\delta B + \alpha V_S^1 - \delta\alpha V_L^2)$ (and thus $\tilde{m} < 1$), we immediately obtain the following corollary:

Corollary 1. *Assume the extreme case $m_i = 1$. Then LTP can never be implemented, irrespective of the other parameters.*

The case $m_i < \tilde{m}(\delta)$ is not possible for $m_i = 1$, irrespective of the values of α, B, δ, V_S^1, V_S^2 and V_L^2. This again shows that the larger the value of m_i, the more difficult it becomes to motivate the politician to undertake *LTP*. This fact can also be observed in our next corollary, which follows directly from proposition 1 since $\tilde{m}(\delta)$ can never be negative.

Corollary 2. *Suppose that the voters can commit themselves to a reelection scheme in stage 1 and that they use $q(0) = 1$ and $q(V_S^1) = 0$. If $m_i = 0$, then LTP is always implemented, irrespective of the other parameters.*

Thus, a politician who is only interested in the benefits from holding office will always undertake the optimal policy. In the following, we examine the connection of $\tilde{m}$ and δ. From Equation (5) we obtain $\lim \tilde{m}(\delta) = 0$ for $\delta \to 0$ and

$$\frac{\partial \tilde{m}(\delta)}{\partial \delta} = \frac{\alpha V_S^1 B}{\left[\alpha V_S^1 + \delta B - \alpha\delta V_L^2\right]^2} > 0. \tag{6}$$

So for $\delta \to 0$ the politician only chooses the efficient policy if $m_i \to 0$. This is not surprising as δ close to 0 means that the politician has almost no valuation for the future. Thus, the benefits from holding office in the second period, which are the only means of motivating the incumbent to undertake *LTP*, are irrelevant. With growing δ the range for m_i increases, at which point politicians will choose the socially efficient policy. Note that voters are assumed to be fully rational and infer negative future returns from the positive returns of short-term projects in the first election period.

The public's inability to motivate the elected politician to undertake *LTP* for some parameter constellations gets even worse when the voters cannot commit themselves to a reelection scheme. This assumption of non-commitment is more realistic for democratic decision-making. As an example of the severity of the problem in such cases, suppose that the public votes prospectively so that past policy performance does not influence the reelection chances at all.[17] Imagine for example that $q(0) = q(V_S^1) = \frac{1}{2}$. This means that the ex ante reelection probability of the incumbent is $\frac{1}{2}$, independent of the policy undertaken. Under this assumption we obtain:

[16] Furthermore, we assumed that even in the case of being reelected the politician has no negative private utility from a negative result in period 2.

[17] This is an extreme assumption and made solely for expositional purposes.

Proposition 2. *Suppose that* $q(0) = q(V_S^1) = \frac{1}{2}$ *and that* $m_i \neq 0$. *Then the politician cannot be motivated by elections to undertake LTP.*

Proof: The proof is similar to the proof of proposition 1. This time we have to compare $U_i^L(q_i = \frac{1}{2})$ with $U_i^S(q_i = \frac{1}{2})$. This yields the following condition, which must be satisfied to motivate the politician to undertake LTP:

$$\delta m_i V_L^2 \geq 2 m_i V_S^1.$$

By assumption, this condition can not be fulfilled for $m_i \neq 0$, which completes the proof. □

The proposition illustrates that it is impossible to motivate a politician (except for the case of a 100% office-seeker) to adopt *LTP* if his reelection prospects are not connected with the result of the policy he has undertaken in the past. In the following section we propose a mechanism that is helpful in solving the inefficiencies identified.

4 Solution by incentive contracts

In this section we extend the original game by giving the politicians the opportunity to offer incentive contracts before the first election takes place. This means adding the following additional stage:

Stage 0: At the beginning of period 1, both politicians simultaneously offer incentive contracts $C_1(\beta_1 V^2)$ and $C_2(\beta_2 V^2)$ (with $0 \leq \beta_i \leq 1$) to the voters. These incentive contracts have the following consequences: In the case of reelection in period 2, politician i receives a net transfer $\beta_i V^2$ if $V^2 \geq 0$, while a negative value of V^2 has no consequences, i.e. the politician receives neither a transfer nor has to pay any penalties.

The other stages of the game are not modified. We assume that the three utility components $\alpha \max\{0; V^2\}$, $\beta \max\{0; V^2\}$, and B are not combined by their weighting factors.[18] To keep the analysis simple, we assume that the parameter for utility from monetary rewards due to the incentive contract is 1.[19] We only compare the impact of utility from projects to the benefits from holding office. This seems to be an appropriate procedure if we assume that a populist will mainly receive benefits from B, and that the monetary rewards of the incentive contract are less important to him.[20] Under these assumptions we obtain the following utility function:

$$U_i(\beta, q_i) = p_i\{(1 - m_i)B + m_i\,\alpha V^1 + \delta q_i[(1 - m_i)B + (m_i\alpha + \beta) \cdot \max\{0, V^2\}]\} \quad (7)$$

[18] Alternatively, one might assume that the utility component $\beta \max\{0; V^2\}$ is either weighted by m or by $1 - m$. This would not damage the positive effect of incentive contracts but would only make the results less clear with respect to the welfare comparison of policy success-seekers versus populists.

[19] Another fixed weight for utility from monetary rewards by the incentive contract is possible and only changes the results of $\bar{\beta}^C$, $\bar{\beta}^{NC}$, and $\bar{\beta}^{NCPa}$ in Equations (8), (11) and (16), while the algebraic sign of the derivations (10) and (14) remains unchanged.

[20] This will be the case if the populist politician obtains utility mostly from the non-monetary benefit components of B, like prestige or the satisfaction of being in power.

We derive the results in the cases of commitment and non-commitment and denote the equilibrium values for β by $\bar{\beta}^C$ and $\bar{\beta}^{NC}$, respectively. At the end of this section, we will have a short look at some possible extensions of the model in the scenario with incentive contracts.

4.1 Competition in the case of voters' commitment

We assume in this subsection that voters can commit themselves to a reelection scheme at the beginning of stage 0 (i.e. before the politicians offer their incentive contracts). It is then possible to compare the scenario both with competition for incentive contracts and elections to the scenario in the previous section with elections only. We obtain:

Proposition 3. *Suppose that voters can commit themselves to a reelection scheme in stage 0, that incentive contracts can be offered by the politicians, and that* $m_1 > m_2 \geq \tilde{m} = \frac{\delta B}{\alpha V_S^1 + \delta B - \delta \alpha V_L^2}$. *Then there will exist a unique subgame perfect equilibrium*

$$\left\{C_1(\beta_1 V^2), C_2(\beta_2 V^2), p_1 = 0, p_2 = 1, q_1(0) = 1, q_2(0) = 1, q_1\left(V_S^1\right) = 0, q_2\left(V_S^1\right) = 0\right\}$$

with

$$\beta_1 = \beta_2 = \bar{\beta}^C = \frac{m_1 \alpha V_S^1 - \delta\left\{(1 - m_1)B + m_1 \alpha V_L^2\right\}}{\delta V_L^2} \tag{8}$$

and with candidate 2 being elected and implementing LTP if

$$\delta \cdot \bar{\beta}^C V_L^2 < TV_L - TV_S. \tag{9}$$

The proof is given in the Appendix.

Proposition 3 shows that the combination of elections and incentive contracts prevents inefficient decision-making in politics by providing the possibility of future transfers to the elected politician. Both politicians offer the same incentive contract. The equilibrium contract is designed in such a way that the politician with the higher value of m_i is indifferent about choosing the long-term project or the short-term project. The politician with the lower value of m_i is elected according to our first tie-breaking rule.[21] He will undertake the socially efficient long-term project and will be reelected with certainty.

Note that, in the case of elections only, *LTP* would never be implemented because of the assumption $m_1 > m_2 \geq \tilde{m}$. In the next step, we examine what happens to the incentive contracts in the case $m_i < \tilde{m}$. For $m_i < \tilde{m}$ we would have $\bar{\beta}^C < 0$, because politicians with such a low m_i receive so much benefit from holding office that they would even pay money to have *LTP* implemented in order to get elected. The extreme case $m_i = 0$ would result in $\bar{\beta}^C = -\frac{B}{V_L^2}$. But by assumption we have the restriction $0 \leq \beta_i \leq 1$, so we obtain a lower

[21] Note that without our first tie-breaking rule both politicians would have election probabilities of $\frac{1}{2}$ since the public expects them to generate the same social welfare. In this case politician 2 would deviate to $\bar{\beta}^C - \varepsilon$ in order to re-obtain an election probability of 1. We use the first tie-breaking rule to avoid these ε-considerations, but the results of the paper would still be valid if we dropped this tie-breaking rule.

limit $\tilde{m} = \frac{\delta B}{\alpha V_S^1 + \delta B - \delta\alpha V_L^2} > 0$ for m_i.[22] This means that, when using incentive contracts, the permitted values for m_i are restricted by the following term:

$$0 \;<\; \frac{\delta B}{\alpha V_S^1 + \delta B - \delta\alpha V_L^2} \;\leq\; m_i \;\leq\; 1.$$

In the following, we analyze how the amount of money transferred by the incentive contract depends on the value of m_1. From Equation (8) we obtain

$$\frac{\partial \bar{\beta}^C}{\partial m_1} = \frac{\alpha\left(V_S^1 - \delta V_L^2\right) + \delta B}{\delta V_L^2} > 0. \tag{10}$$

$\bar{\beta}^C$ depends positively on m_1.[23] Therefore, a small m_1 affects the elected politician 2 and decreases the cost of transfers to him. It will be advantageous for the voters if both politicians tend to be populistic.

4.2 Competition without commitment

Up to now we have analyzed how incentive contracts work when voters can commit themselves to a reelection scheme. Even though this gives the election mechanism the greatest possible power to motivate politicians to undertake *LTP*, the commitment assumption is contrary to a fundamental democratic principle. The assumption that the public commits future citizens to adhere to a particular voting behavior violates the principle of free and anonymous elections in liberal democracies. A second argument against the commitment assumption is that voters may have incentives not to reelect the incumbent in order to save the remuneration due to his incentive contract.

We first deal with the democratic requirement for unconstrained voting. Assume the extreme case in which there is complete uncertainty about the voting behavior of future generations. Then the elected politician has an a priori expected reelection probability of $q_i = \frac{1}{2}$, independently of the policies he pursues.[24] For this extreme non-commitment case we obtain:

Proposition 4. *Suppose $m_1 > m_2 \geq \tilde{m}$. Then there exists a unique subgame perfect equilibrium*

$$\left\{C_1(\beta_1 V^2), C_2(\beta_2 V^2),\, p_1 = 0,\, p_2 = 1,\, q_1(0) = \frac{1}{2}, q_2(0) = \frac{1}{2}, q_1\left(V_S^1\right) = \frac{1}{2}, q_2\left(V_S^1\right) = \frac{1}{2}\right\}$$

[22] Note that this restriction is unproblematic, as for values $m_i < \tilde{m}$ the implementation of the socially optimal policy is assured anyway.

[23] The intuition is as follows: $\bar{\beta}^C$ is calculated such that candidate 1 is indifferent about undertaking *STP* or *LTP*. With growing m_1, *STP* gets relatively more attractive as the weight of V_S^1 gets larger in comparison to δB. Thus, the amount of money necessary to make the politician indifferent increases, which results in a higher value $\bar{\beta}^C$.

[24] Note that this is the opposite of the commitment case, where the politicians knew their reelection probabilities depending on their policy results. These two extreme cases act as benchmarks. In reality, intermediate cases are much more plausible.

with

$$\beta_1 = \beta_2 = \bar{\beta}^{NC} = \frac{m_1\alpha\left(2V_S^1 - \delta V_L^2\right)}{\delta V_L^2} \tag{11}$$

and with candidate 2 being elected and implementing LTP if

$$\delta\ \bar{\beta}^{NC} V_L^2 < TV_L - TV_S. \tag{12}$$

Proof: The proof is analogous to the commitment case. Here we have to compare $U_1^L(\bar{\beta}^{NC}, q_1 = \frac{1}{2})$ with $U_1^S(\bar{\beta}^{NC}, q_1 = \frac{1}{2})$. This yields the following condition:

$$\bar{\beta}^{NC} \geq \frac{2m_1\alpha V_S^1 - \delta m_1\alpha V_L^2}{\delta V_L^2}$$

and we achieve Equation (11). □

As

$$\frac{m_1\alpha\left(2V_S^1 - \delta V_L^2\right)}{\delta V_L^2} > \frac{m_1\alpha V_S^1 - m_1\alpha\delta V_L^2}{\delta V_L^2} \geq \frac{m_1\alpha V_S^1 - \delta\left\{(1-m_1)B + m_1\alpha V_L^2\right\}}{\delta V_L^2},$$

we obtain the following corollary as an immediate consequence:

Corollary 3.

$$\bar{\beta}^{NC} > \bar{\beta}^{C} \tag{13}$$

In the non-commitment case, it requires higher remuneration to make the politician with the higher factor m_1 indifferent as to *LTP* and *STP*. The uncertainty of reelection in the case of having adopted *LTP* must be compensated by higher remuneration.

In the non-commitment case, the amount of money transferred by the incentive contract again depends positively on the value of m_1, as we see from Equation (11):

$$\frac{\partial\bar{\beta}^{NC}}{\partial m_1} = \frac{\alpha\left(2V_S^1 - \delta V_L^2\right)}{\delta V_L^2} > 0. \tag{14}$$

Therefore in the non-commitment case too, it will be advantageous for the voters if both politicians tend to be populistic.

Now we analyze the other kind of non-commitment. It is possible that voters may not reelect the incumbent in order to save the remuneration due to his incentive contract. This problem can be solved by golden parachute contracts, which are denoted by C^{Pa} and work as follows: The incentive contract will not only inure if the incumbent is reelected but also if he stands for reelection and is not reelected. Therefore, the incumbent will profit from the positive value of V_L^2 even if he is no longer in office. Golden parachute contracts decrease the pecuniary interests of the public in not reelecting the incumbent. Hence, they strengthen

the motivation of politicians to undertake *LTP*. $U_i^{Pa,L}(\beta_i, q_i = 0)$ denotes the utility of a politician who has offered a golden parachute contract, implements *LTP*, and is not reelected. This utility is given by

$$U_i^{Pa,L}(\beta_i, q_i = 0) = p_i\big((1 - m_i)B + m_i\alpha V_L^1 + \delta\beta_i V_L^2\big). \tag{15}$$

We denote the critical value for β in the non-commitment case with golden parachute contracts by $\bar{\beta}^{NCPa}$ and obtain the following proposition:

Proposition 5. *Suppose that $m_1 > m_2 \geq \tilde{m}$. We assume that politicians can offer golden parachute contracts and that the incumbent is never reelected. There exists a unique subgame perfect equilibrium where politicians offer golden parachute contracts*

$$\big\{C_1^{Pa}(\beta_1 V^2),\, C_2^{Pa}(\beta_2 V^2),\, p_1 = 0,\, p_2 = 1,\, q_1(0) = 0,\, q_2(0) = 0,\, q_1\big(V_S^1\big) = 0,\, q_2\big(V_S^1\big) = 0\big\}$$

with

$$\beta_1 = \beta_2 = \bar{\beta}^{NCPa} = \frac{m_1\alpha V_S^1}{\delta V_L^2} \tag{16}$$

and with candidate 2 being elected, implementing LTP, and not getting reelected if

$$\delta \cdot \bar{\beta}^{NCPa} V_L^2 < TV_L - TV_S. \tag{17}$$

The proof is similar to the commitment case. The value $\bar{\beta}^{NCPa}$ is determined by setting $U_1^{Pa,L}(\bar{\beta}^{NCPa}, q_1 = 0) = U_1^S(\bar{\beta}^{NCPa}, q_1 = 0)$. We use the tie-breaking rule that the candidate with the lower factor m_i will be elected if the public is indifferent between the two politicians. We have assumed an extreme case of non-commitment in proposition 5, but the option of offering golden parachute contracts also works for intermediate values of positive reelection probabilities.

The comparison of $\bar{\beta}^C$ and $\bar{\beta}^{NCPa}$ yields the following corollary:

Corollary 4.

$$\bar{\beta}^{NCPa} > \bar{\beta}^C \tag{18}$$

An immediate consequence is that golden parachute contracts are not able to guarantee the implementation of *LTP* at such low costs for the public as in the commitment case. This is obvious, as larger monetary incentives are necessary to compensate for the fact that undertaking *LTP* does no longer result in higher reelection chances. Finally, we compare $\bar{\beta}^{NC}$ and $\bar{\beta}^{NCPa}$. Since $\bar{\beta}^{NC}$ can be written as $\bar{\beta}^{NCPa} + \frac{m_1\alpha V_S^1 - \delta m_1 \alpha V_L^2}{\delta V_L^2}$, we get the following corollary:

Corollary 5.

$$\bar{\beta}^{NCPa} < \bar{\beta}^{NC} \tag{19}$$

Thus for the voters, golden parachute contracts are cheaper than ordinary incentive contracts in the non-commitment case. This is due to the fact that politicians always receive the payments from the incentive contract in the golden parachute case, while the probability of receiving the incentive contract payments is only $\frac{1}{2}$ in the non-commitment case. This positive effect in the golden parachute case is larger than the negative effect of not having the utility $\frac{1}{2}\delta\alpha m_1 V_L^2$ which the politician receives from the project in the non-commitment case.

4.3 Extensions

In this subsection, we will briefly address two extensions of our basic model. First, we will analyze a situation with asymmetric information. Then, we will examine the case where incentive contracts may also include punishment for poor performance.

We have assumed that the public knows the politicians' values of m_i. But this seems to be rather unlikely in certain circumstances, e.g. when politicians run for office for the first time. Suppose that voters are uncertain regarding m_i. They presume that a politician has $m = \tilde{m}$ $(0 < \tilde{m} < 1)$ with probability z and $m = 1$ with probability $1 - z$. Suppose that both politicians are fully informed about the value m of their opponent, which seems to be realistic because political opponents usually know each other well. As shown in the extended version (Müller, 2006), there exists a perfect Bayesian equilibrium of the game when the public can commit to a reelection scheme. As in the basic model, politicians can be motivated to undertake *LTP*. However, the incentive contract must stipulate larger transfers.

Another useful extension is to allow for monetary punishments of politicians who choose *STP* and who are reelected. Then, it may be optimal for voters to reelect a politician who selects *STP* in order to punish him. As shown in Müller (2006), such schemes may lower the costs of motivating the politician to undertake *LTP*, if the monetary punishment can be enforced.

5 Statesmen versus populists

In our model, the politician is only concerned about the social returns of his policy as long as he is in office and as long as they are positive. One could also assume that a politician has private welfare losses when the project he implements generates lower social returns than the status quo, and that his utility will also be influenced by the project results if they occur when he is no longer in office. We will call a politician a "statesman" if he has a high value m_i, if he has private welfare losses from negative project results, and if his utility is also influenced by project results if they occur when he is no longer in office.

In this section, we are interested in the comparison between statesmen and populists. We look at the simplest case, assuming that no incentive contracts can be offered and that voters can commit to a reelection scheme, namely $q(0) = 1$ and $q(V_S^1) = 0$. As we already know from Corollary 2, a 100% populist (this means $m_i = 0$) will always undertake *LTP*.[25] We now assume that $m_i = 1$ to analyze the behavior of 100% statesmen given the reelection scheme of the voters. If the politician undertakes *LTP*, then the voters will reelect him, whereas he will be deselected after undertaking *STP*. Therefore, we need to compare $U_i^L(q_i = 1)$ with

[25] Note that the behavior of a 100% populist is not affected by the changes in the utility function. If he undertakes *LTP* he will have utility $B + \delta B$, whereas he will have utility B if he undertakes *STP*.

$U_i^S(q_i = 0)$ and obtain the following results:

$$U_i^L(q_i = 1) = \delta\alpha V_L^2 > 0 \tag{20}$$

and

$$U_i^S(q_i = 0) = \alpha V_S^1 + \delta\alpha V_S^2 < 0. \tag{21}$$

Thus, a 100% statesman will always choose *LTP*.

We can summarize our results as follows. In our model frame a 100% populist will always behave in a socially optimal manner, while the behavior of a 100% statesman depends on assumptions concerning private welfare from project results. It is not implausible for a politician who is extremely statesman-like to have private welfare losses in the case of a negative project result and for these losses to occur even when he is no longer in office. Therefore, it is no longer possible to make a definite statement about the welfare effects of statesmen versus populists in the scenario without incentive contracts.

As 100% populists and statesmen with private welfare losses in the case of negative project results already act in a socially optimal manner when there are elections only, there is no need for incentive contracts under these assumptions. Thus, we can sum up as follows: In our basic model, incentive contracts improve social welfare and populists are more easily motivated to implement the socially optimal project than policy success-seekers. While it is possible to create situations where incentive contracts are not needed any more, incentive contracts for politicians always have at least a non-negative effect.[26] The question whether populists are generally more beneficial for society seems to be more complicated. Although the finding that populists are desirable for a society is not robust under all possible modifications, we have at least shown that it is possible for a society to be justified in preferring populists to statesmen. Detailed analysis of this issue is a matter for future research.

6 Conclusion and perspectives

In our simple model we obtain the surprising result that populists are better for social welfare than "policy success-seekers". However, the more interesting comparison between statesmen and populists might differ from this result in a more realistic framework since this result is at least partially caused by the chosen form of the utility function. Nevertheless, we have at least shown that it might be better for society if a politician is a populist. Furthermore, we have shown that incentive contracts enabling the implementation of socially optimal policy will be cheaper for society if politicians tend to be populistic.

Looking at optimal design of political constitutions, we find that there are some other interesting issues. One might for example discuss the optimal setting of wages for politicians. Will an increase of remuneration have positive effects? On the one hand, higher wages might motivate the incumbent to initiate better policy projects since he has larger incentives to behave in a socially optimal manner in order to get reelected. On the other hand, higher wages might reduce the quality of the pool of candidates. Low wages might mean that most candidates have intrinsic motivations. They are really interested in the results of their policy and think that political activity is their civic duty. With growing remuneration there might

[26] Note that we disregard the administrative and wage costs of the incentive contracts here.

be more and more candidates aiming for political careers for monetary reasons.[27] Another interesting topic is the effect of term limits. If the socially optimal policy diverges from the opinion of the median voter, then politicians who are mainly interested in benefits from holding office will not implement the socially efficient policy, since they will have no chance of getting reelected in this case. In a scenario with term limits, the incumbent might undertake the socially optimal policy during his final term of office. On the other hand, the control effect of the reelection mechanism is normally advantageous for society. A formal discussion of these related topics and their influence on the efficiency of incentive contracts is a matter for future research.

Appendix

Proof of Proposition 3: We first show that condition (9) is necessary for the equilibrium to be rational from the voters' point of view. As long as condition (9) is fulfilled, the welfare advantage of *LTP* compared to *STP* (i.e. $TV_L - TV_S$) is larger than the costs that accrue to the public from the incentive contract (i.e. $\delta\bar{\beta}^C V_L^2$) for a given value of $\bar{\beta}^C$. Hence, condition (9) ensures that the voters are better off by committing themselves to reelect a politician who has implemented *LTP* than by choosing the reelection scheme $q_1(0) = q_2(0) = 0$, which avoids the transfer $\bar{\beta}^C V_L^2$ but leads to *STP*.

In the next step we calculate the value $\bar{\beta}^C$. As $m_1 > m_2$, we determine $\bar{\beta}^C$ in such a way that the first candidate will be indifferent as to choosing *STP* or *LTP*, if he gets elected. We use the reelection scheme $q(0) = 1$ and $q(V_S^1) = 0$ for the public, which is the largest possible spread to punish politicians for undertaking *STP*. Thus, $\bar{\beta}^C$ is determined by setting

$$U_1^L(\bar{\beta}^C, q_1 = 1) = U_1^S(q_1 = 0), \tag{A.1}$$

which gives Equation (8). In the next step we look at candidate 2. To predict the behavior of candidate 2 if he offers $\bar{\beta}^C$ we have to compare $U_2^L(\bar{\beta}^C, q_2 = 1)$ and $U_2^S(q_2 = 0)$. For $U_2^L(\bar{\beta}^C, q_2 = 1) > U_2^S(q_2 = 0)$ to be true, it must hold that:

$$(1 - m_2)\delta B + m_2\delta\alpha V_L^2 + \delta V_L^2 \frac{m_1\alpha V_S^1 - \delta\left\{(1 - m_1)B + m_1\alpha V_L^2\right\}}{\delta V_L^2} > m_2\alpha V_S^1 \tag{A.2}$$

This expression can be simplified to $(m_1 - m_2)(\delta B + \alpha V_S^1 - \delta\alpha V_L^2) > 0$, which holds since $m_2 < m_1$. Therefore, we have $U_2^L(\bar{\beta}^C, q_2 = 1) > U_2^S(q_2 = 0)$. Thus, candidate 2 will offer $\bar{\beta}^C$, and he is elected according to the first tie-breaking rule.

To establish the equilibrium, we consider four possible deviations from the equilibrium described in Proposition 3.

First, suppose that candidate 2 deviates and offers $C_2(\beta_2 V^2)$ with $\beta_2 > \bar{\beta}^C$. The deviation is not profitable, as candidate 2 is not elected in this case because candidate 1 also implements *LTP* and demands a lower transfer.

Second, suppose candidate 1 deviates to $C_1(\beta_1 V^2)$ with $\beta_1 > \bar{\beta}^C$. Then the public will not elect politician 1 even if he were to undertake *LTP*, because it is cheaper for the voters to elect the second candidate. Therefore, the deviation is not profitable.

[27] However, as we showed above, it is not totally clear whether politicians who are mainly interested in the benefits from holding office are really worse for society than intrinsically motivated politicians.

Third, suppose candidate 1 deviates to $C_1(\beta_1 V^2)$ with $\beta_1 < \bar{\beta}^C$. This would imply $U_1^L(\beta_1, q_1 = 1) < U_1^S(q_1 = 0)$. Thus, candidate 1 would implement *STP*. The public will not elect candidate 1, therefore the deviation is not profitable.

Finally, it is obvious that the second candidate has no incentive to offer a contract $C_2(\beta_2 V^2)$ with $\beta_2 < \bar{\beta}^C$ because he would receive lower transfers in the second period and $\beta_2 < \bar{\beta}^C$ does not increase his chances of being elected.

Uniqueness follows in a similar way. For any offer constellation $C_1(\beta_1 V^2)$, $C_2(\beta_2 V^2)$ with $\beta_i \neq \bar{\beta}^C$ for at least one candidate, one of the politicians has an incentive to deviate by offering $C_i(\bar{\beta}^C V^2)$ or by offering an incentive contract that requires slightly lower transfers from the public.[28] □

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[28] We omit the tedious but straightforward description of all possible cases.